

Draughting on screen

By Selwyn Arrow

The possibilities of microcomputer computer aided draughting (CAD, which is also the abbreviation for computer-aided design) were ably demonstrated by Mr Tom Lazear, founder and president of T & W Systems Inc., California, during a recent series of seminars held in Auckland by Powertech Engineering, Ltd.

This led to a "hands-on", one-day workshop with four workstations running IBM-VersaCAD, HP-VersaCAD or CADAPPLE. This "word processor for draughting" has been developed by T & W Systems to utilise personal computers and so fill the gap between repetitive manual draughting and large CAD, installations which would cost around \$250,000.

By adding a \$5500 CADAPPLE package to an Apple computer (or workalike), two disk drives, two monitors, a plotter, and digitiser pad, a CAD system can be purchased for just under \$20,000.

A more comprehensive system based on the IBM PC would cost from around \$24,000 and up, while a Hewlett-Packard system ranges from around \$41,000 to \$72,000. The prices vary depending on the options chosen.

This package has been described as "high speed draughting with many templates". When an object has been drawn it is saved and can be added to the library of objects for recall at any time. An object can be circles, lines, curves, rectangles, polygons.

These can be grouped into collections, such as a piece of furniture, a hotel room, or a wiring diagram. Approximately 2000 objects can be handled in one drawing at a time. This includes lettering or dimensions. When one dimension is altered all others affected are automatically updated to scale correctly.

Multi layering, or levels, are provided for. These are equivalent to transparent overlays and each level can be switched in or out at will for both screen and

plotter. For instance a room can have different levels for each of: partitions, furniture, electrical wiring, plumbing. Then for a multi-story building each floor could use the same basic plan and have its own set of levels.

Drawing details are input directly on to the screen using a bit pad (digitiser tablet), joystick, or keyboard. It is very easy to master.

With complex drawings many fine details cannot appear on the screen, but they are in the memory and can be found with the zoom feature. They will, of course, be shown on the final drawing (to the limits of the plotter scale). When completed on screen the drawing is sent to the plotter complete with information for plot scale, line style, pen colour, and density as specified in the drawing so that the final result can be admired. Plotting can be on to A4, A3, or A1 paper, vellum or mylar film, and is very useful for producing overhead transparencies as well.

A complete file management system is provided to save and recall drawings from disk.

The second screen (optional) is used to show the menus of commands available for each function. This is in the form of a tree system and is very easy to use.

The HP200-based VersaCAD offers the widest range of facilities and the fastest performance, with its 32-bit 68000 microprocessor and 700K of memory. It features a high resolution (512 x 390) display using colour to highlight different levels and menu information which overlays the drawing when required.

The middle price and performance range is provided by the IBM based VersaCAD. With its 320 x 200 display (colour is optional) and second screen for menu information it is not as powerful but by adding an 8087 maths co-processor it runs nearly as fast as the HP version.

The standard CADAPPLE system can also be improved upon by adding speed-up cards such as The Mill (1.6 times faster) using a 3809 microprocessor or the Accelerator II (three times faster) using the new 6502C microprocessor.

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Ian Athawell admires the Dick Smith VZ200 home computer he won in a competition run at the Bits & Bytes computer show in Christchurch in December. Ian, 17, is a pupil at Hornby High School in Christchurch.

The two-day show - the first purely computer exhibition in Christchurch - drew more than 5000 people to view the 40-plus exhibits. Exhibitors were thrilled with the response they got from a steady stream of enthusiastic visitors. BITS & BYTES intends organising another Christchurch Computer Show this year. Watch for further announcements.

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